



UNITED STATES PATENT AND TRADEMARK OFFICE

[Signature]
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,371	03/26/2004	Peter S. Chow	TI-35993	8614
23494	7590	04/23/2007	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED			JOSEPH, JAISON	
P O BOX 655474, M/S 3999				
DALLAS, TX 75265			ART UNIT	PAPER NUMBER
			2611	
SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE		DELIVERY MODE	
3 MONTHS	04/23/2007		PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/810,371	CHOW, PETER S.	
	Examiner	Art Unit	
	Jaison Joseph	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 26 March 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-26 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 11, 14 – 19, and 21 – 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Wright et al. (USPAP 2005/0030975).

Regarding claim 1, Wright et al teach a digital subscriber line modem, comprising: a first transceiver, adapted to be coupled to a first communications facility, for modulating and transmitting signals in a first frequency band over the first communications facility, and for receiving and demodulating signals in a second frequency band from the first communications facility, wherein the data rate of the signals received by the first transceiver is significantly higher than that of the signals

transmitted by the first transceiver (see figure 2 and paragraph 0007); a second transceiver, adapted to be coupled to a second communications facility, for modulating and transmitting signals in a third frequency band over the second communications facility, and for receiving and demodulating signals in a fourth frequency band from the second communications facility, wherein the data rate of the signals transmitted by the second transceiver is significantly higher than that of the signals received by the second transceiver (see figure 2, and paragraph 0007); a host interface coupled to the first and second transceivers, for outputting the demodulated received signals from the first and second transceivers, and for receiving the signals to be modulated and transmitted by the first and second transceivers (see figure 2, component 214 or 204 and paragraph 0007).

Regarding claim 2, which inherits the limitations of claim 1, Wright et al further disclose wherein the first and second communications facilities comprise first and second twisted-wire pairs (see paragraph 0019).

Regarding claim 3, which inherits the limitations of claim 2, Wright et al further disclose wherein the first and fourth frequency bands are substantially identical (see paragraph 0007).

Regarding claim 4, which inherits the limitations of claim 3, Wright et al further disclose wherein the second and third frequency bands are substantially identical (see paragraph 0007).

Regarding claim 5, which inherits the limitations of claim 2, Wright et al further disclose wherein the first and second frequency bands do not overlap; and wherein the

second frequency band covers higher frequencies than the first frequency band (it is inherent that in DSL communication system upstream frequency band do not overlap with downstream frequency band and down stream frequency band covers higher frequencies than upstream frequencies).

Regarding claim 6, which inherits the limitations of claim 5, Wright et al further discloses wherein the third and fourth frequency bands do not overlap; and wherein the third frequency band covers higher frequencies than the fourth frequency band (it is inherent that in DSL communication system upstream frequency band do not overlap with downstream frequency band and down stream frequency band covers higher frequencies than upstream frequencies).

Regarding claim 7, which inherits the limitations of claim 1, Wright et al further disclose wherein each of the first and second transceivers a hybrid circuit, coupled to the communications facility; a line driver and receiver circuit, coupled to the hybrid circuit; a coder/decoder, coupled to the line driver and receiver circuit; and a digital transceiver, coupled between the coder/decoder and the host interface (see paragraph 0007 and 0018 Wright et al further discloses ADSL modem connected to the aggregator (host) it is inherent that the a hybrid circuit, a line driver, coder/ decoder and transceiver all are components of a ADSL modem).

Regarding claim 8; which inherits the limitations of claim 7, Wright et al further disclose wherein the digital transceivers of the first and second transceivers comprise a digital signal processor (see paragraph 0021).

Regarding claim 9, Wright et al disclose a digital subscriber line communications system, comprising: a communications facility, comprising: a first twisted-wire pair; a second twisted-wire pair (see figure 2); a central office modem, comprising: a first transceiver, for receiving and demodulating signals in a first frequency band over the first twisted-wire pair, and for modulating and transmitting signals in a second frequency band over the first twisted-wire pair (see figure 2, component 212), wherein the data rate of the signals received by the first transceiver is significantly lower than that of the signals transmitted by the first transceiver (see figure 2); a second transceiver, for receiving and demodulating signals in a third frequency band over the second twisted-wire pair, and for modulating and transmitting signals in a fourth frequency band over the second twisted-wire pair (see figure 2, component 210), wherein the data rate of the signals received by the second transceiver is significantly higher than that of the signals transmitted by the second transceiver (see figure 2); a network interface, for interfacing the first and second transceivers to a network (see figure 2, component 214); a customer premises equipment modem associated with a customer, comprising: a third transceiver, for modulating and transmitting signals in the first frequency band over the first twisted-wire pair, and for receiving and demodulating signals in the second frequency band over the first twisted-wire pair (see figure 2, component 208), wherein the data rate of the signals received by the third transceiver is significantly higher than that of the signals transmitted by the third transceiver (see figure 2); a fourth transceiver, for modulating and transmitting signals in the third frequency band over the second twisted-wire pair, and for receiving and demodulating signals in the fourth

frequency band over the second twisted-wire pair (see figure 2, component 206), wherein the data rate of the signals transmitted by the second transceiver is significantly higher than that of the signals received by the second transceiver (see figure 2); and a host interface, for interfacing the third and fourth transceivers to a network (see figure 2, component 202).

Regarding claim 10, which inherits the limitations of claim 9, Wright et al further disclose a communications facility, coupled to the first and second transceivers of the central office modem; and a concentrator, coupled to the first and second twisted-wire pairs and to the communications facility (see figure 2).

Regarding claim 11, which inherits the limitations of claim 10, Wright et al further disclose wherein the communications facility comprises a fiber optic facility (see figure 2 and paragraph 0016).

Regarding claim 14, which inherits the limitations of claim 10, Wright et al further disclose wherein the communications facility comprises wire conductors.

Regarding claim 15, which inherits the limitations of claim 9, Wright et al further disclose wherein the first and fourth frequency bands are substantially identical (see paragraph 0007).

Regarding claim 16, which inherits the limitations of claim 15, Wright et al further disclose wherein the second and third frequency bands are substantially identical (see paragraph 0007).

Regarding claim 17, which inherits the limitations of claim 9, Wright et al further disclose wherein the first and second frequency bands do not overlap; and wherein the

second frequency band covers higher frequencies than the first frequency band (it is inherent that in DSL communication system upstream frequency band do not overlap with downstream frequency band and down stream frequency band covers higher frequencies than upstream frequencies).

Regarding claim 18, which inherits the limitations of claim 17, Wright et al further disclose wherein the third and fourth frequency bands do not overlap; and wherein the third frequency band covers higher frequencies than the fourth frequency band (it is inherent that in DSL communication system upstream frequency band do not overlap with downstream frequency band and down stream frequency band covers higher frequencies than upstream frequencies).

Regarding claim 19, which inherits the limitations of claim 10 Wright et al further disclose wherein the concentrator comprises: a concentrator function, coupled to the first and second twisted-wire pairs and to the communications facility; and a central processing unit, coupled to the concentrator function, for assigning the first and second twisted-wire pairs to a communications service provider associated with the customer serviced by the first and second twisted-wire pairs (see figure 2).

Regarding claim 21, the claimed method including the features corresponds to the subject matter mentioned above in the rejection claim 9 is applicable hereto. Furthermore it is inherent that the ADSL upstream band and downstream band are subdivided into plurality of sub-channels.

Art Unit: 2611

Regarding claim 22, which inherits the limitations of claim 21, the claimed method including the features corresponds to the subject matter mentioned above in the rejection claim 15 is applicable hereto.

Regarding claim 23, which inherits the limitations of claim 22, the claimed method including the features corresponds to the subject matter mentioned above in the rejection claim 16 is applicable hereto.

Regarding claim 24, which inherits the limitations of claim 21, the claimed method including the features corresponds to the subject matter mentioned above in the rejection claim 17 is applicable hereto.

Regarding claim 25, which inherits the limitations of claim 24, the claimed method including the features corresponds to the subject matter mentioned above in the rejection claim 18 is applicable hereto.

Regarding claim 22, the claimed method including the features corresponds to the subject matter mentioned above in the rejection claim 9 is applicable hereto.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al. (USPAP 2005/0030975).

Regarding claim 20, which inherits the limitations of claim 9, Wright et al does not expressly teach the twisted pairs are disposed within a common sheath. However one of ordinary skilled in the art at the time the invention was made to have the both twisted pairs disposed within a common sheath. Applicant has not disclosed that the having the both twisted pairs in a common sheath provides an advantage, is used for a particular purpose, or solves a stated problem. Therefore it would be obvious to one of ordinary skilled in the art to modify the Wrights transmission system as specified in claim 20.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wright et al. (USPAP 2005/0030975) in view of Barlev et al (US Patent 7,133,441).

Regarding claim 12, which inherits the limitations of claim 11, Wright et al is cited as explained in the above paragraph. Wright et al does not expressly teach having an analog to digital converter and a digital to analog converter connected between twisted pair and the access system. However, in analogous art, Barlev et al teach wherein the concentrator comprises: analog-to-digital converter circuitry, for converting analog signals received over the first and second twisted-wire pairs to digital signals (see figure 5 and figure 10, components 334); and digital-to-analog converter circuitry, for converting digital signals into analog signals for transmission over the first and second twisted-wire pairs (see figure 10, components 334). Therefore it would be obvious to an ordinary skilled in the art at the time the invention was made to incorporate Barlev et al's access system in Wright et al. the motivation or suggestion to do so is to have system compatibility between the twisted pair and the high speed access system.

Regarding claim 13, which inherits the limitations of claim12, Barlev et al further teach wherein the concentrator further comprises: modulator and demodulator circuitry, for modulating and demodulating signals communicated between the communications facility and the first and second twisted-wire pairs, so that the signals communicated over the first and second twisted-wire pairs are modulated according to a discrete multi-tone modulation (see figure 10 and 11).

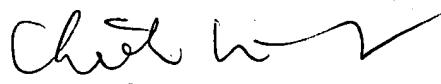
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaison Joseph whose telephone number is (571) 272-6041. The examiner can normally be reached on M-F 9:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jaison Joseph
04/13/2007


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER